event, the hand-offs themselves are not equivalent to switching; they occur to support efficient use of radio spectrum in a cellular architecture network, not the routing of calls between end-users.

3. Conversion of Broadband Services for Information Service Providers.

The provision of information services is highly competitive, and has been deregulated for more than 30 years. While information services providers sometimes use parts of the local exchange network to provide service to end users, they do so by obtaining tariffed services from ILECs. The 1996 Act makes clear that UNEs cannot be used to provide an information service.[82]

CLECs have nonetheless attempted to insert themselves between ILECs and information services providers by converting tariffed customer services into UNE-centered services. Various CLECs have obtained UNEs to provide connections between end-user customers and those customers' ISPs. This is what data CLECs like Covad do with respect to broadband Internet access. The CLEC in this scenario is typically little more than a regulatory fiction – a device to use a particular regulatory classification to obtain UNE-based "carrier" connections and prices lower than those available to mere "customers." The CLEC adds little if any value of its own.

The extension of UNEs into the information services realm is surely not necessary to promote competition for these services. Competition has evolved rapidly without such UNEs. For example, there are now more than 7,000 providers of narrowband Internet access, and the Bell companies collectively provide service to fewer than 6 percent of the subscribers to these services.[83] Nor is the extension of UNEs to serve ISPs necessary to promote competition in the broadband market. As discussed in Section IV.C, the provision of broadband services is already highly competitive.

D. Facilities-Based Investment in New Broadband Infrastructure.

The "widespread deployment of broadband infrastructure has become the central communications policy objective of the day." This will require "the complete or near-complete replacement of copper lines with end-to-end fiber optic transmission facilities."[84] To promote the objective, "broadband services should exist in a minimal regulatory environment that promotes investment and innovation in a competitive market."[85]

Manufacturers of computers and other types of hardware that use bandwidth are all but unanimous in their view that – as Intel CEO Craig Barrett puts it, "broadband" only "gets exciting when you get to 5 megabits per second or even 100 mbps."[86] What ranks as

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[82] *See* 47 U.S.C. § 251(c)(3).

[83] *See* P. Fusco, *Top U.S. ISPs by Subscriber: 2001 Year End*, ISP-Planet.com (Feb. 11, 2002), http://www.isp-planet.com/research/rankings/usa.html.

[84] *Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Notice of Proposed Rulemaking, 17 FCC Rcd 3019, ¶¶ 1, 12 (2002).

[85] *Id.* ¶ 5.

[86] J. Shiver, *Intel CEO Makes Case for Broadband Aid*, L.A. Times (Jan. 28, 2002).

"broadband" today "is not sufficient to provide some of the serious content people are interested in."[87] Surveys already confirm that consumers who obtain broadband connections use the Internet more, not less.[88] Higher speed connections don't merely accelerate – and thus shorten – connections – they immediately lead to new uses and thus, *longer* connections.[89] As the Commission recognized in its *First Advanced Services Report*, broadband links become part of a self-reinforcing "virtuous cycle," in which better performance and lower per-bit price "fuels more demand" – heavier use of existing applications, and, more importantly, "demand for new applications that were not feasible before."[90] "As the cycle gains momentum . . . companies will provide new applications and services for broadband consumers, . . . consumers will demand broadband, and the virtuous cycle will accelerate."[91] *See* Table 5.

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[87] *Id.* As Intel has stressed, "the true benefits of broadband will require faster transmission speeds" – "at only 200 kbps, 'advanced services' are not capable of providing adequate transmission speeds for video." Comments of Intel Corp. at 5, *Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996*, CC Docket No. 98-146 (FCC filed Sept. 24, 2001). "High-definition video requires 19.8 Mbps; DVD-quality video needs almost 4 Mbps; and even television quality requires 750 kbps or more. In fact, 'many experts set 100 Mbps as the frontier [of the Web's true potential for] general surfing to streaming high-quality, skip-free digital audio and video, as well as faster upload of graphic images and larger files.'" *Id.* Corning likewise has suggested that "[a] minimum transmission speed of 10 mbps upstream and downstream should be utilized for the purpose of defining next generation broadband capability. . . . This speed is necessary to allow for the bi-directional transmission of audio, data at 10 base-T Ethernet speeds, and compressed full motion video." Comments of Corning Inc., *Deployment of Broadband Networks and Advanced Telecommunications*, Docket No. 011109273-1273-01 (NTIA filed Dec. 19, 2001). But Corning stressed that "10 mbps is a minimal level of transmission," that the range really extends from 10 mbps to 1 Gbps. *Id.* Corning senior vice president Timothy Reagan told the House Energy and Commerce Committee that "[i]f you think that Americans will need access to information in all its forms – audio, video, and data – it is easy . . . to see that a capability in excess of 22 [Mbps] downstream and 10 [Mbps] upstream is ideal." Timothy Regan, Senior Vice President, Corning Inc., prepared witness testimony before the House Energy and Commerce Committee, Washington, D.C. (Apr. 25, 2001).

[88] *See, e.g., Broadband 2001* at Charts 16 and 17 (as broadband users, survey participants spent on average 21.4 hours per month online, as compared to 15.9 hours with a narrowband connection. These same users also spent more time per session (32 minutes vs. 21 minutes), spent more days online (18 vs. 17) and viewed more pages per month (1,828 vs. 1,561)); Jupiter Media Metrix Press Release, *Over 40 Percent of US Online Households to Connect Via Broadband by 2006, Reports Jupiter Media Metrix* (Oct. 17, 2001) ("Broadband consumers continue to use their connections more intensively than narrowband consumers do...").

[89] According to a Broadband Watch study, customers are using broadband to engage in online activities such as shopping online (95 percent), e-mailing photos (76 percent), downloading streaming video (64 percent), downloading MP3s (61 percent), telecommuting (60 percent), creating Web pages (49 percent) and playing games (47 percent). Respondents also reported that with DSL, they are much more likely to engage in these higher-bandwidth activities: downloading MP3s: 61 percent with DSL vs. 35 percent with dial-up; downloading video: 64 percent with DSL vs. 36 percent with dial-up; and e-mailing photos: 76 percent with DSL vs. 62 percent with dial-up. *See Survey Says: DSL Users "Addicted" to Broadband*, Bus. Wire (Apr. 3, 2001). *See also* Jupiter Media Metrix Press Release, *Over 40 Percent of US Online Households to Connect Via Broadband by 2006, Reports Jupiter Media Metrix* (Oct. 17, 2001) ("Broadband users are more likely than dial-up users are to download music (46 percent of broadband users, 26 percent of dial-up users), listen to music (48 percent and 30 percent, respectively) and watch video (36 percent and 18 percent, respectively). . . . [M]ore broadband consumers conduct personal banking (48 percent and 30 percent, respectively) and stock-related activities online (35 percent and 23 percent, respectively) than dial-up consumers do.").

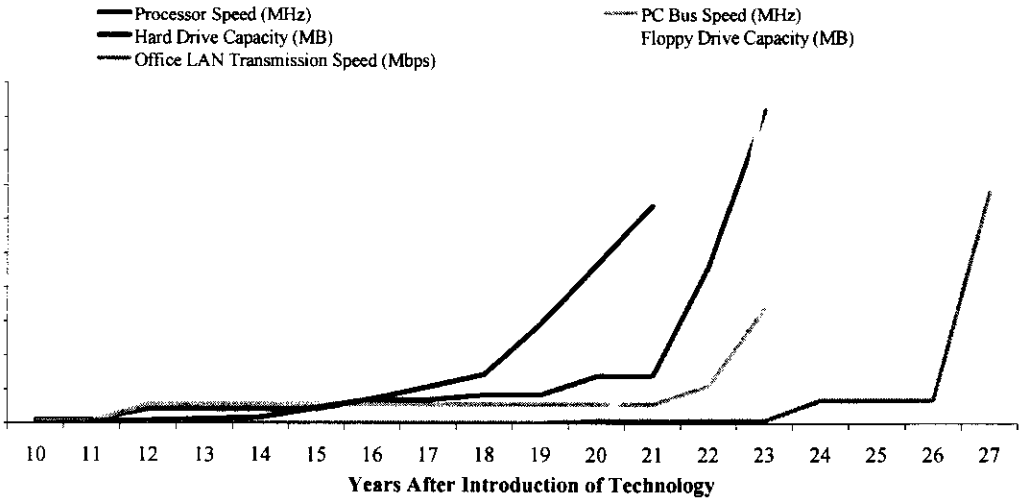
[90] *First Advanced Services Report* ¶ 95.

[91] *First Advanced Services Report* ¶ 96.

Table 5. Emerging Broadband Applications		
Application	**Minimum Speed**	
Next-Generation Game Consoles (*e.g.*, Microsoft Xbox)	200 kbps	"You need to have a broadband connection . . . to use the Xbox online service." "Broadband access makes possible an explosion of multiplayer games."
Online Gaming	200 kbps	"As broadband connections become more standard, the online gaming industry is poised to deliver gaming experiences that are more enjoyable and exciting than anything we have seen so far."
Downloading Music	200 kbps	"Most MP3 files are between 2MB and 5MB in size. Downloading that much data through a narrowband pipe is horribly tedious, especially if you're trying to build an extensive music library on your hard drive. But with cable, DSL, or satellite, the tunes reach your hard drive in a relative flash."
Internet Radio	200 kbps	"Though [Internet radio] is possible with a dialup connection, it doesn't work so well because the signal often gets clogged in the narrow pipe. But with broadband, the music or talk usually reaches your ears as it was originally sung, played, or spoken."
Telemedicine – Distance Diagnosis	384 kbps	"The majority of [distance] diagnoses could be determined using [a] 384 kbps link, with slight improvement when the bandwidth was increased to 1 mbps."
Distance Learning	384 kbps	"H.320 [the lowest speed distance-learning standard] provides high-quality images at any speed from 384 Kbps and up."
Video-on-Demand (*e.g.*, Microsoft/ CinemaNow's PatchBay)	500 kbps	"[V]ideo-on-demand will remain out of reach for most U.S. households in the near future, including all homes using dial-up internet access and even the vast majority of broadband households."
Streaming Video	600 kbps	"[A] minimum 600-Kbps and maximum 800-Kbps video stream to each modem [is] enough to provide each user half a computer screen of 'TV-quality' video synched with its audio at all times."
Full-Length Video Downloads	1 Mbps	"Downloading a full-length feature over a fast broadband connection at 1 mebabit per second (Mbps) takes about 30 minutes. Over a slow broadband connection of 128 kilobits per second (Kbps), it could take hours."
Videoconferencing	1.5 Mbps	"The target for videoconferencing is 30 fps (broadcast quality) but requires bandwidth in the range of 1.5 mbps."
Telesurgery	10 Mbps	For a recent telesurgery by a doctor in New York on a patient in France, France Telecom "needed to guarantee 10 Mbps and continuous transmission delays of less than 200 milliseconds, on both inbound and outbound links."

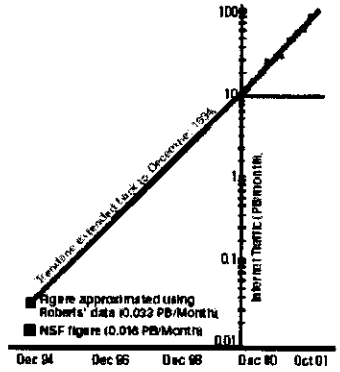
Sources: See Appendix M.

Figure 5. Increase in Speed/Bandwidth of Various Technologies



Sources: See Appendix M.

Figure 6. Internet Backbone Traffic Growth



Source: Gilder Technology Report. See Appendix M.

From the consumer's perspective, demand for bandwidth – raw digital capacity and speed – has been rising very fast for the last decade – just as demand for speed and capacity in all the hardware that links up to the digital networks as been rising inexorably for the past two decades. *See* Figures 5 & 6. What ranks as "broad" today no longer will a few years hence. Most of the applications that will generate data traffic five years hence aren't running today, at least not in any way comparable to what they will become. Most of the users of "broadband services" today aren't yet using those services for what they will be using them for in the fairly near future. Most of today's "broadband" infrastructure, both wired and wireless, will have to be upgraded again and again, indefinitely into the future, to meet the continuous rise in demand.

Many residential applications are now emerging, from high-speed games to telecommuting to telemedicine, that will push residential consumers toward symmetric broadband services. As the chief of the Commission's Media Bureau recently observed, "current generation 'broadband' networks cannot support . . . killer apps, the predecessors of which are

staring us right in the face."[92] Such applications will require "next generation of broadband network – one that presumably will be symmetrical, or nearly so, and capable of delivering perhaps ten megabits per second."[93]

As the Commission itself recently concluded, much of the copper distribution plant will have to be replaced with fiber.[94] One analyst estimates that "modernizing our wireline access infrastructure will likely cost over $200 billion from start to finish," and that this investment will have to be made "without a firm grasp of what services will be demanded and at what price they will be purchased."[95]

Wireless broadband services are coming, too. A number of U.S. CMRS carriers have already deployed 2.5G[96] services which allow users to access the Internet at speeds up to 144 kbps, a significant improvement over widely deployed 2G services, with top speeds around 10 kbps.[97] 3G networks will be needed for true broadband.[98] Although the FCC has yet to allocate additional spectrum specifically for 3G wireless services, a number of companies already are in the process of deploying 3G networks over their existing spectrum. Verizon Wireless recently launched its 3G service in markets covering one-third of the company's national footprint.[99]

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[92] W. Kenneth Ferree, Chief, Cable Services Bureau, FCC, *How* Do *You Build the Information Superhighway?*, remarks at the Broadband Outlook 2002 Conference (Jan. 23, 2002).

[93] *Id.*

[94] *See Appropriate Framework for Broadband Access to the Internet over Wireline Facilities*, Notice of Proposed Rulemaking, ¶ 12, CC Docket No. 02-33, FCC 02-42 (rel. Feb. 15, 2002) ("[t]he logical technological evolution of the network is the complete or near-complete replacement of copper lines with end-to-end fiber optic transmission facilities."); *see also* I. Burgess, Credit Suisse First Boston, Investext Rpt. No. 2989479, European Telecom Equipment Weekly Update - Industry Report at *4 (Nov. 12, 1999) ("Ultimately the limitations of copper cable ensure that the economic solution is to push fibre deeper and deeper into the network, closer and closer to the user."); M. Suydam, *Passive Aggressive*, CommVerge at 40 (May 1, 2001) ("[Passive Optical Networking] is obviously much better than copper. While DSL is hot today, how long will that last? Eventually, everything will go into fiber.") (quoting Dong Liu, strategic marketing manager for networking and interface products, Agere Systems).

[95] Douglas Ashton, Bear Stearns and Co., prepared witness testimony before the House Energy and Commerce Committee, Washington, D.C. (Apr. 25, 2001).

[96] *See Sixth CMRS Report* at 48 ("the term 2.5G is used to describe the interim technologies that carriers will use while migrating from their current 2G technologies in order to offer mobile data services at higher speeds.")

[97] Carriers who have deployed 2.5G services include VoiceStream, Cingular Wireless, and AT&T Wireless. *See Legg Mason Wireless Industry Scorecard* at 28; 3G Newsroom.com, *What Is 3G?*, http://www.3gnewsroom.com/html/what_is_3g/index.shtml (updated Nov. 18, 2001).

[98] *See, e.g.*, J. Haring, H. Shooshan, and K. Pehrsson, Strategic Policy Research, *White Paper on Elimination of the Spectrum Cap* at 6 (Apr. 12, 2001) *attached to* Comments of Cingular Wireless LLC in *2000 Biennial Review Spectrum Aggregation Limits for Commercial Mobile Radio Services*, WT Docket No. 01-14 (FCC filed Apr. 13, 2001) ("3G services will provide the advantages of allowing internet browsing on the move, and will be 'always on' – *i.e.*, no need to establish a network connection each time the user wants to receive e-mail or surf the web.").

[99] Verizon Wireless Press Release, *Verizon Wireless Launches Nation's First Major Advanced Wireless Network: The Verizon Wireless Express Network* (Jan. 28, 2002); Verizon Wireless Press Release, *Verizon Wireless Introduces Express Network to Key U.S. Cities in the Midwest, South, Northeast and the Pacific Northwest* (Apr. 2, 2002).

Sprint PCS is expected to follow within the first half of 2002.[100] Analysts predict that 3G networks will be widely deployed by 2004 or 2005.[101]

The Commission also has recently taken the first steps to "pave the way for new types of products incorporating ultra-wideband (UWB) technology"[102] – devices that "can operate using spectrum occupied by existing radio services without causing interference,"[103] and to explore the introduction of "software defined radio" (SDR) technology that could allow a single device to be quickly reprogrammed to transmit and receive on any frequency within a wide range using virtually any transmission format.[104] There also are a host of other technologies currently under development that will be capable of provisioning wireless broadband services. These include Digital SMR, 2 GHz MSS satellite systems, L-Band satellites, and Big LEO satellites.

The strongest incentive 3G carriers and other wireless carriers have today to accelerate the roll out of their broadband wireless services is to capture from incumbent cable operators and ILECs a share of the profitable ($40-$50 per month) broadband subscription fees. A UNE policy that promotes uneconomic competition over the high-frequency portion of the ILEC loop, based on excessively discounted TELRIC prices, will surely depress investment in the high-frequency portions of the airwaves themselves.

Finally, the Commission has recognized that fixed wireless access offers "a replacement for the 'last mile' of copper wire."[105] Recent advancements in fixed wireless technologies are expected to "cause a spur in service provider deployments."[106] In particular, Non-Line-of-Sight

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[100] *See* B. Chamy, *VoiceStream Launches New Phone Network*, CNET News.com (Nov. 14, 2001), http://news.com.com/2100-1033-275853.html?; *see also Sixth CMRS Report* at App. D, Tables 1 & 2 (showing the various 3G contracts and tests/trials already underway in the U.S.).

[101] *See, e.g., IDC Wireless Displacement Report* at 20 (By the 2003-2004 timeframe, 2.5G and 3G end-user terminals . . . are expected to be available in mass market quantities."); P. Jarich and R. Haley, Strategis Group, *Fixed Wireless: The Emerging Vendor Landscape* at 208 (Nov. 2001) ("U.S. carriers are planning to deploy high-speed mobile networks as early as year-end 2001.... the 2004-2005 timeframe is seen to be pivotal for the development of the 3G market."); T. Robillard, Salomon Smith Barney, Investext Rpt. No. 2421674, 3G Odyssey: Infrastructure the Opportunity; Timing the Risk – Industry Report at *1 (Jan. 3, 2001) ("We believe 2G capacity driven spending will represent majority of [revenues] in 01 and 02 while 3G should add to sales and is unlikely to represent majority of [infrastructure revenues] until late 03/early 04."); F. Marsala, Robertson Stephens, Investext Rpt. No. 8245695, Implications of Cingular's Technology Announcement – Industry Report at *1 (Oct. 31, 2001) ("[AT&T Wireless] currently plans to deploy third-generation W-CDMA (also called UMTS) beginning in 2003").

[102] *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, Public Notice, 15 FCC Rcd 12086 (2000).

[103] FCC News Release, *New Public Safety Applications and Broadband Internet Access Among Uses Envisioned by FCC Authorization of Ultra-Wideband Technology* (Feb. 14, 2002); *id.* (these devices will permit "scarce spectrum resources to be used more efficiently.").

[104] *See Inquiry Regarding Software Defined Radios*, Notice of Inquiry, 15 FCC Rcd 5930 (2000); *Authorization and Use of Software Defined Radios*, First Report and Order, 16 FCC Rcd 17373 (2001).

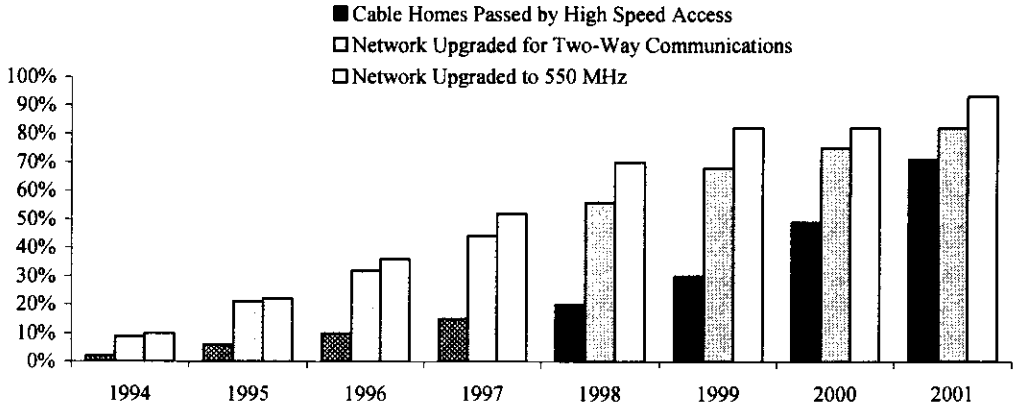
[105] *Third CMRS Report*, App. F at F-1.

[106] *See Yankee Group Fiber and Fixed Wireless Report* at 13; M. Helgeson, Dain Rauscher Wessels, *Broadband Wireless: The Worldwide Assessment* at 4 (May 17, 2001) ("With NLOS we believe at least 25% more customers can be served within the same geographical footprint. We further believe that this could mean the difference in convincing service providers to put their money into deploying the technology en masse."); C. Riggle, *Next-Generation NLOS Fixed Wireless – An NLOS Case Study*, Broadband Wireless Online (Sept. 2001),

technologies have been developed, which obviates the need for an unobstructed path between a fixed wireless transmitter and an end-user premises.[107] In addition, "[t]he incorporation of IP-based telephony capabilities in second-generation NLOS equipment will allow MMDS providers to incorporate voice applications in their service mix."[108] This is expected to prompt fixed wireless providers "to target the residential end users, thereby increasing fixed wireless availability and hence subscriber base."[109]

The Commission also has recognized that the new broadband infrastructure, both wired and wireless, will be rolled out incrementally. Network deployments are "complex and time-consuming projects that require enormous capital expenditures, a skilled labor-force, and available supply of advanced equipment."[110] As a result, even incumbent network operators "cannot upgrade all of their systems simultaneously," but instead "upgrades are a multiyear and multiphase endeavor, whereby the operator upgrades certain systems and offers new services on an incremental basis."[111] *See, e.g.*, Figure 7.

Figure 7. Cable Network Upgrades*



*Shaded columns represent estimated status of upgrades.

Sources: See Appendix M.

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http://www.shorecliffcommunications.com/magazine/volume.asp?vol=20&story=182 ("[W]ith the recent availability of NLOS wireless solutions, MMDS carriers have a renewed competitive opportunity. MMDS carriers can deploy their networks faster and thus are positioned to capture market share from cable and DSL access providers."); B. Harter, *Is Market-Changing BWA Technology in Sight?*, Broadband Week (May 7, 2001), http://www.broadbandweek.com/news/010507/010507_wireless_tech.htm. ("A recent [Allied Business Intelligence] report calls NLOS technologies a key component in the growth of multichannel multipoint distribution services-based networks.").

[107] *Yankee Group Fiber and Fixed Wireless Report.*

[108] *Id.* at 11.

[109] *Id.* at 8.

[110] *AT&T/MediaOne Order* ¶ 150.

[111] *Id.*

Unfettered competition is almost always the best policy when markets are young, and when technology is evolving quickly.[112] And that is certainly the condition of the broadband market today. Most of the market is up for grabs, because 90-plus percent of the technology that will ultimately be used hasn't yet been built, 90-plus percent of the capital hasn't yet been committed, and 90-plus percent of the customers aren't yet being served. And because broadband digital services will ultimately absorb and displace the old, analog voice and video, it is equally true that no player in the market today has any assurance of winning any given share of the vast digital market ahead. An extraordinary transformation in technology is overtaking all the old certainties.

[112] *See, e.g.*, Michael Powell, Chairman, FCC, remarks before the National Summit on Broadband Deployment, Washington, D.C. (Oct. 25, 2001) ("The market is the best vehicle designed by mankind for innovation, for technology change and evolution."); *id.* ("Clearly, legal restraints can retard deployment of new services."); Michael Powell, Chairman, FCC, remarks before the Federal Communications Bar Association, Washington, D.C. (June 21, 2001) ("[B]efore 1993, many argued that we should not open up the wireless market. It was thought that two competitors in the cellular market were certainly more than sufficient. Since that market was opened and PCS introduced we have seen a phenomenal explosion in innovative, digital wireless services.").

APPENDICES

APPENDIX A. ESTIMATING CLEC LINES

The FCC's February 2002 *Local Telephone Competition Report* includes CLEC line-count figures that are based on counts supplied by the CLECs themselves to the FCC. Those counts do not appear to be accurate, however. There are other significant problems too, but the most important source of inaccuracy is probably that CLECs are either overlooking or misinterpreting the requirement that they convert high-capacity lines into voice-grade-equivalent lines. In contrast, the CLECs *do* make a clear distinction between lines and "voice-grade equivalents" when they report on the state of their business to investors.

According to the Commission's recent report, CLECs reported serving a total of 17.3 million lines as of June 30, 2001. The CLECs inform the FCC that they served about half of those lines – 8.6 million lines – in whole or in part over their own facilities, beginning with their own switches.[1] The other half were resale or UNE-P lines, switched by the ILEC.

The Bell companies are, of course, in a position to check the UNE-P and resale-line totals directly, and Bell company records confirm that the CLECs' resale and UNE-P counts are reasonably accurate. But additional Bell company records indicate beyond serious doubt that the estimates of facilities-based lines that the CLECs are supplying to the Commission are much too low. CLECs are in fact serving two to three times as many lines over their own facilities than their reports to the Commission indicate. In total, CLECs served no fewer than 25 million lines, and likely closer to 32 million lines as of year-end 2001, not 17 million.

"Lines" versus "Voice-Grade Equivalent Lines." The FCC directs CLECs to report "all local exchange service lines and all lines that are used for exchange access services."[2] Carriers must report all "voice-grade *equivalent* lines," which are defined as "a line or channel that directly connects an end user to a carrier and allows the end user to originate and terminate local telephone calls on the public switched network."[3] The FCC further directs carriers to:

> Count as one voice-grade equivalent line: traditional analog POTS lines, Centrex-CO extensions, and Centrex-CU trunks. Count lines based on how they are charged to the customer rather than how they are physically provisioned . . . Report 8 voice-grade equivalent lines if a customer buys 8 trunks that happen to be provisioned over a DS1 circuit. If a customer buys a DS1 circuit that is

[1] CLECs reported serving 5.8 million lines over "CLEC-owned 'last-mile' facilities." *FCC Local Competition Report, Feb. 2002 ed.* at Table 3. In addition, CLECs reported serving 7.6 million lines through "UNEs," which includes UNE loops leased from an ILEC and used in combination with a CLEC's own switch. *See id.* at 1-2 & nn. 3-4. According to data reported by ILECs, there were 4.8 million "UNEs with switching" provided to CLECs. *See id.* at Table 4. Subtracting this figure from the 7.6 million lines that CLECs serve through UNES, results in 2.8 million CLEC lines served using ILEC loops but CLEC switching.

[2] FCC, *Instructions for the Local Competition and Broadband Reporting Form*, FCC Form 477 at 5 (of data as of Dec. 31, 2001) ("*Form 477 Instructions*").

[3] *Id.* at 5, 6 (emphasis in original).

provided as a channelized service, report 24 voice-grade lines, even if there is some indication that the customer is only using 8 of the derived lines.[4]

CLECs certainly know what the term "voice-grade equivalent line" means. They use the term themselves in reports to the investment community, including their reports filed with the Securities Exchange Commission. *See* Section I, Table 4. In dealing with the FCC, however, some CLECs express concern that complying with the FCC's instructions would lead to the release of competitively sensitive information.[5] As the Commission itself has noted, "the reports of at least some CLECs are not consistent" with its directions, and, as a result, "there may be some need for further clarification and adjustment of the reporting system."[6]

E911 Listings: At Least 16 Million Facilities-Based CLEC Lines. As of year-end 2001, CLECs had listed 16 million lines in E911 databases – or almost twice as many as the 8.6 million facilities-based lines they reported to the FCC. This gross discrepancy cannot be attributed to any factor other than gross under-reporting by the CLECs to the FCC.[7]

For obvious reasons, the E911 databases are maintained with scrupulous care. The databases are maintained on behalf of police and fire departments by the ILECs; their contents are derived from both ILEC and CLEC records. ILECs provide all entries for lines served by the ILECs themselves, and for UNE-P and resale lines served by CLECs. CLECs provide the entries for lines switched by CLEC switches. Once a carrier loses a customer, its E911 listing for that customer is replaced by the listing of the customer's new carrier, which ensures that the database does not become infected with large numbers of obsolete listings.

Each E911 subscriber listing represents at least one customer access line, but may represent more than a single line. In the case of business customers, for example, a single E911 listing may represent many individual lines, because a carrier does not typically have to create a separate E911 listings for every line served at the same location. A business might, for example, have 100 lines numbered 326-79xx; a single E911 listing would then suffice to link all calls from 326-79xx numbers as originating from the same location. A count of CLEC lines based of E911 listings will therefore understate the number of lines served by CLEC switches.

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[4] *Id.*

[5] *See, e.g.*, Comments of AT&T Corp. at 17, *Local Competition and Broadband Reporting*, CC Docket No. 99-301 (FCC filed Dec. 3, 1999) ("There is little information that is guarded more closely by a newly-developing competitor . . . than its subscriber and access line counts."); Comments of Time Warner Telecom at 6-7, *Local Competition and Broadband Reporting*, CC Docket No. 99-301 (FCC filed Mar. 19, 2001) ("Much of the data the Commission requests on Form 477 is widely considered proprietary and competitively-sensitive. . . . [f]or example, TWTC routinely seeks confidential treatment of its data on total voice telephone service lines and channels provided to end users.").

[6] *FCC Local Competition Report, Feb. 2002 ed.* at 1-2, n.3.

[7] The CLEC-reported totals in the FCC's report are understated for other reasons as well. The FCC requires CLECs to provide the number of lines they serve on a state-by-state basis, but only for the states "in which they provide 10,000 or more 'voice-grade equivalent lines.'" Form 477 Instructions at 1. As the Commission has recognized, "lines as reported by CLECs are understated as a result of th[is] state-specific reporting threshold." *FCC Local Competition Report, Feb. 2002 ed.* at 2, n.5. Any confusion with regard to lines versus "voice-grade-equivalent circuits" may of course seriously compound this under-reporting problem. Moreover, the FCC totals are as of June 2001, whereas the totals reported here are for year-end 2001.

Both the FCC and the Department of Justice have repeatedly relied on E911 listings to estimate CLEC facilities-based lines in section 271 proceedings.[8] No CLEC providing service to end-user customers has yet claimed that its facilities-based lines are actually lower than the totals produced by its E911 listings.[9] Nor has any CLEC disputed that the E911 methodology undercounts lines served.

Interconnection Trunks: 23 Million Facilities-Based CLEC Lines. CLECs have obtained approximately 9 million interconnection *trunks* from ILECs. In the reports they file with the FCC, however, the CLECs claim to be serving only 8.6 million *lines* over their own facilities. It is simply inconceivable that CLECs have obtained roughly one trunk for every line they serve.

CLECs serve a large number of residential and business customers for whom line-to-trunk ratios of between 4:1 and 10:1 are the industry norm. In arriving at the high-end estimate – 23 million facilities-based CLEC lines – presented in this report, the Bell companies used a ratio of 2.75 lines per interconnection trunk. That ratio is based on internal studies that one Bell company (SBC) performed in 1998. That study took a weighted average of the different kinds of customers that CLECs were likely to be serving at that time, and the line-to-trunk ratios they were likely to be using for those different types of customers. The study assumed that 65 percent of CLEC lines were provided to ISPs using a 1:1 line-to-trunk ratio, and that the remaining 35 percent were provided to business customers using a 6:1 line-to-trunk ratio.

Today, CLECs are serving a far higher percentage of non-ISP customers.[10] Their average line-to-trunk ratios will therefore be considerably higher today than they were in 1998. Larger CLECs will have higher line-to-trunk ratios too, because large-number statistics make possible much more efficient sharing of trunks. And CLECs are much less likely to maintain inventories of inactive trunks today than they were in 1998. CLEC operations have grown much more efficient over time, and CLECs are now less likely to base day-to-day business decisions on over-optimistic projections of future growth.

For all of these reasons, our trunk-derived estimates of 23-million facilities-based CLEC lines are very conservative. As with the E911-derived estimates, the actual totals may well be two to ten times higher.

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[8] *See, e.g., DOJ Arkansas/Missouri Evaluation* at 4, n. 8 ("Estimated market share will vary depending on the methodology used to estimate facilities-based lines. The Department relied on entries in the E-911 database."); *DOJ New York Evaluation* at 9; *DOJ Kansas/Oklahoma Evaluation* at 4, n. 11 & 7, n. 25; *DOJ Massachusetts Evaluation* at 4; *DOJ Pennsylvania Evaluation* at 4.

[9] On a few occasions (*e.g.*, Sprint in the first Georgia/Louisiana 271 proceeding and WorldCom in the Arkansas/Missouri 271 proceeding), CLECs have claimed that their residential E911 listings were only for test lines, not actual customers, and that they were no longer operating those test lines. While E911 listings are typically removed from the database when a customer modifies or terminates service on a given telephone number (*e.g.*, when the customer switches to another carrier, or the customer's phone number is transferred to a different address), at any given time a snapshot of the E911 database is taken there may still a few inactive E911 listings in the database. Such listings represent no more than a *de minimis* fraction of all CLEC listings in the database at any given time.

[10] For example, based on E911 listings, CLECs serve approximately 3 million residential subscribers today over their own local switches, which represents between 13 and 19 percent of all lines that CLECs serve with their own switches.

CLEC Reports to Investors: 156 Million Voice-Grade Equivalent Lines. Twelve CLECs publicly report the numbers of "voice-grade" "DS0" or "access line" "equivalents" they serve. Together they report serving a total of *156 million* voice-grade circuits. *See* Section I, Table 4. In a recent presentation to Lehman Brothers, AT&T President David Dorman stated that AT&T's local network alone was being used to serve "2.7 M local voice lines," but "over 30 M DSO equivalents."[11] WorldCom's most recent 10-K filed with the SEC indicates that it added more than 10 million "domestic local voice grade equivalents" in 2001 alone, bringing its total to more than 76 million.[12]

[11] Dave Dorman, President, AT&T, *Presentation Before the Lehman Brothers T3 Telecom, Trends and Technology Conference* (Dec. 6, 2001).

[12] WorldCom, Inc., Form 10-K (SEC filed Mar. 13, 2002).

APPENDIX B. CLEC CIRCUIT SWITCHES

This appendix tabulates the circuit switches that CLECs operate. It is based on information contained in Telcordia's *Local Exchange Routing Guide*.

This appendix includes the switches owned by CLECs that have declared bankruptcy. Most such CLECs are still operational (and some are now emerging from bankruptcy). Moreover, switches are a sunk investment, so if one company ceases to use its switch it is highly likely that another company will quickly seize the opportunity to do so (and will probably be able to obtain the switch at a fire-sale price). In addition, even though some CLECs may now be experiencing financial troubles, the fact that they were able to deploy so many switches at one time is still highly probative of the ability of CLECs to deploy switches generally. In any event, switches operated by CLECs that have declared bankruptcy (as of March 31, 2002) represent no more than 17 percent of the total counted here.

CLEC Circuit Switches Serving BOC Rate Centers

State	BOC Region	Type	CLEC	City	Street
AL	BELLSOUTH	DMH	ALLTEL	MONTGOMERY	6925 HALCYON DR
AL	VERIZON	DMH	AT&T	BIRMINGHAM	2101 6TH AVE N
AL	BELLSOUTH	4E	AT&T	BIRMINGHAM	1715 6TH AVE N
AL	BELLSOUTH	4E	AT&T	MONTGOMERY	38 WASHINGTON AVE
AL	BELLSOUTH	5E	E.SPIRE	BIRMINGHAM	505 20TH ST
AL	BELLSOUTH	5E	E.SPIRE	MOBILE	103 DAUPHIN ST
AL	BELLSOUTH	5E	E.SPIRE	MONTGOMERY	ONE COURT SQUARE
AL	BELLSOUTH	5E	ICG COMMUNICATIONS	BIRMINGHAM	2114 1ST AVE N
AL	BELLSOUTH	NT5	INTERMEDIA COMMUNICATIONS	BIRMINGHAM	2705 6TH AVE S
AL	BELLSOUTH	DM5	ITC^DELTACOM	ANNISTON	2 DELTA DR
AL	VERIZON	DM5	ITC^DELTACOM	BIRMINGHAM	900 APPALACHEE ST
AL	VERIZON	DS	ITC^DELTACOM	HUNTSVILLE	8600 S MEMORIAL PKY
AL	BELLSOUTH	DS	ITC^DELTACOM	MOBILE	25 BATTLESHIP PKY
AL	BELLSOUTH	DS	ITC^DELTACOM	MONTGOMERY	10 TALLAPOOSA ST
AL	BELLSOUTH	5E	KMC TELECOM	HUNTSVILLE	994 EXPLORER BLVD
AL	BELLSOUTH	5E	KMC TELECOM	MONTGOMERY	315 N BAINBRIDGE ST
AL	BELLSOUTH	DS	LEVEL 3	BIRMINGHAM	600 18TH ST N
AL	BELLSOUTH	DS	NETWORK TELEPH.	BIRMINGHAM	1920 OXMOOR RD
AL	BELLSOUTH	5E	NEWSOUTH COMMUNICATIONS	BIRMINGHAM	950 22ND ST SUITE 850
AL	BELLSOUTH	EWSD	NEWSOUTH COMMUNICATIONS	MOBILE	103 DAUPHIN ST
AL	BELLSOUTH	DS	US LEC	BIRMINGHAM	600 UNIVERSITY PARK PL
AL	BELLSOUTH	5E	US LEC	MOBILE	3100 COTTAGE HILL RD @ BLDG-5
AL	BELLSOUTH	DMT	WEBSHOPPE COMMUNICATIONS	ALEXANDER CITY	246 CHURCH ST
AR	SBC	5E	ADELPHIA	LITTLE ROCK	W 3RD ST & S GAINES ST
AR	SBC	DS	ALLTEL	FAYETTEVILLE	138 N EAST AVE
AR	SBC	DS	ALLTEL	FORT SMITH	101 N 13TH ST
AR	SBC	DMH	ALLTEL	LITTLE ROCK	4001 N RODNEY PARHAM
AR	SBC	4E	AT&T	LITTLE ROCK	715 S LOUISIANA ST
AR	SBC	5E	E.SPIRE	LITTLE ROCK	124 W CAPITAL AVE
AR	SBC	DMH	TRIVERGENT	LITTLE ROCK	1519 S BOWMAN RD
AR	SBC	5E	WORLDCOM	LITTLE ROCK	323 S CROSS ST
AZ	QWEST	5ES	ADELPHIA	PHOENIX	1402 E BUCKEYE RD
AZ	QWEST	5E	ALLEGIANCE TELECOM	PHOENIX	120 E VAN BUREN ST
AZ	QWEST	4E	AT&T	MESA	1231 W UNIVERSITY DR

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
AZ	QWEST	4E	AT&T	PHOENIX	211 W MONROE ST
AZ	QWEST	5ES	AT&T	PHOENIX	211 W MONROE ST
AZ	QWEST	5ES	AT&T	PHOENIX	2730 E CAMELBACK RD
AZ	QWEST	4E	AT&T	TUCSON	126 E ALAMEDA ST
AZ	QWEST	DM5	COX	CHANDLER	100 N 79TH ST
AZ	QWEST	DM5	COX	PHOENIX	6610 W VAN BUREN ST
AZ	QWEST	5ES	E.SPIRE	TUCSON	33 N NORTH STONE AVE
AZ	QWEST	DMS1/200	ELECTRIC LIGHTWAVE	PHOENIX	313 N 3RD AVE
AZ	QWEST	DMS100	ESCHELON	PHOENIX	2600 N CENTRAL AVE
AZ	QWEST	NT5	GLOBAL CROSSING	PHOENIX	429 S 6TH DR
AZ	QWEST	DS	GREAT WEST SVCS	CHANDLER	700 N CORONADO ST
AZ	QWEST	NT5	INTERMEDIA COMMUNICATIONS	PHOENIX	3115 N 3RD AVE
AZ	QWEST	DS	LEVEL 3	PHOENIX	811 S 16TH ST
AZ	QWEST	DS	LEVEL 3	TUCSON	210 W ELM ST
AZ	QWEST	DS	MCLEODUSA	PHOENIX	1710 E GRANT ST
AZ	QWEST	DS	MOUNTAIN TELECOM	SCOTTSDALE	10190 E MCKELLIPS RD
AZ	QWEST	DMS100	NORTH COUNTY COMMUNICATIONS	PHOENIX	1609 N 12TH ST
AZ	QWEST	DMS100	NORTH COUNTY COMMUNICATIONS	PHOENIX	1220 E WASHINGTON ST
AZ	QWEST	DMS100	NORTH COUNTY COMMUNICATIONS	TUCSON	177 N CHURCH AVE
AZ	QWEST	NT5	SADDLEBACK COMMUNICATIONS COMPANY	SCOTTSDALE	10190 E MCKELLIPS RD
AZ	QWEST	NT5	TELIGENT	TEMPE	7850 S HARDY DR
AZ	QWEST	DM5	TIME WARNER TELECOM	PHOENIX	3220 N 3RD ST
AZ	QWEST	DM5	TIME WARNER TELECOM	TUCSON	3836 S EVANS BLVD
AZ	QWEST	NT5	WORLDCOM	PHOENIX	111 W MONROE ST
AZ	QWEST	5ES	WORLDCOM	TUCSON	75 E ALAMEDA ST
AZ	QWEST	NT5	XO	PHOENIX	3930 E WATKINS ST
CA	SBC	DS	ADVANCED TELCOM GROUP	CONCORD	2041 EAST ST
CA	SBC	5E	ADVANCED TELCOM GROUP	SAN RAFAEL	1009 E ST
CA	VERIZON	5E	ALLEGIANCE TELECOM	LOS ANGELES	818 W 7TH ST. SUITE 320
CA	SBC	5E	ALLEGIANCE TELECOM	RANCHO CORDOVA	10995 GOLD CENTER DR
CA	SBC	5E	ALLEGIANCE TELECOM	SAN DIEGO	5761 COPLEY DR
CA	SBC	5E	ALLEGIANCE TELECOM	SAN FRANCISCO	651 BRANNAN STREET, 3RD FLOOR
CA	VERIZON	5E	ALLEGIANCE TELECOM	SANTA ANA	1251 E DYER RD
CA	SBC	5E2	ALLEGIANCE TELECOM	SUNNYVALE	677 PALOMAR AVE
CA	SBC	DS	ARRIVAL COMMUNICATIONS	BAKERSFIELD	1800 19TH ST
CA	VERIZON	5E	AT&T	ANAHEIM	217 N LEMON ST
CA	SBC	4E	AT&T	ANAHEIM	217 N LEMON ST
CA	SBC	4E	AT&T	DUNNIGAN	INTER YOLO CNTY
CA	SBC	5E	AT&T	DUNNIGAN	INTER YOLO COUNTY & ROADS 6 AND 86
CA	SBC	4E	AT&T	GARDENA	17200 S VERMONT AVE
CA	VERIZON	5E	AT&T	LOS ANGELES	700 S FLOWER ST
CA	SBC	4E	AT&T	LOS ANGELES	420 S GRAND AVE
CA	SBC	NT5	AT&T	LOS ANGELES	420 S GRAND AVE
CA	SBC	5E	AT&T	MOJAVE	N-O HWY 58 & 9 MI E-O MOJAVE INDEX D
CA	SBC	4E	AT&T	OAKLAND	1601 FRANKLIN ST

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
CA	SBC	NT5	AT&T	OAKLAND	1601 FRANKLIN ST
CA	SBC	5E	AT&T	OAKLAND	344 20TH ST
CA	SBC	5E	AT&T	OAKLAND	1587 FRANKLIN ST
CA	VERIZON	4E	AT&T	OXNARD	1050 S C ST
CA	VERIZON	5E	AT&T	SACRAMENTO	603 S ST
CA	SBC	4E	AT&T	SACRAMENTO	1407-11-23 J ST
CA	VERIZON	4E	AT&T	SAN BERNARDINO	455 2ND ST
CA	SBC	5E	AT&T	SAN BERNARDINO	455 W 2ND ST
CA	SBC	5E	AT&T	SAN DIEGO	5464 MOREHOUSE DR
CA	SBC	NT5	AT&T	SAN DIEGO	650 ROBINSON AVE
CA	SBC	4E	AT&T	SAN DIEGO	650 ROBINSON AVE
CA	VERIZON	5E	AT&T	SAN FRANCISCO	1 BUSH ST
CA	VERIZON	NT5	AT&T	SAN FRANCISCO	360 SPEAR ST
CA	SBC	5E	AT&T	SAN FRANCISCO	555 PINE ST
CA	SBC	4E	AT&T	SAN FRANCISCO	611 FOLSOM ST
CA	SBC	5E	AT&T	SAN FRANCISCO	360 SPEAR ST
CA	VERIZON	NT5	AT&T	SAN JOSE	95 ALMADEN AVE
CA	SBC	4E	AT&T	SAN JOSE	95 ALMADEN AV
CA	SBC	5E	AT&T	SAN JOSE	95 ALMADEN AV
CA	VERIZON	5E	AT&T	SHERMAN OAKS	14800 VENTURA BLVD
CA	SBC	4E	AT&T	SHERMAN OAKS	14800 VENTURA BLVD
CA	SBC	5E	AT&T	SHERMAN OAKS	14800 VENTURA BLVD
CA	SBC	4E	AT&T	STOCKTON	344 N HUNTER ST
CA	SBC	5E	AT&T	STOCKTON	345 N SAN JOAQUIN AV
CA	SBC	D12	CITIZENS	ELK GROVE	820 ELK GROVE FLORIN RD
CA	VERIZON	5E	COX	ALISO VEIJO	17 JOURNEY ST
CA	SBC	D12	COX	EL CAJON	1175 N. CUYAMUCA ST.
CA	SBC	DMS	COX	RANCHO SANTA MARGARITA	29947 AVENIDA DE LAS BANDERAS
CA	SBC	D12	COX	SAN DIEGO	1441 EUCLID AVE
CA	SBC	D12	ELECTRIC LIGHTWAVE	RANCHO CORDOVA	3224 LUYUNG DR.
CA	VERIZON	NT5	FIRST WORLD COMMUNICATIONS	ANAHEIM	1520 S LEWIS ST
CA	VERIZON	NT5	FOCAL COMMUNICATIONS	LOS ANGELES	1200 W 7TH ST
CA	VERIZON	DM5	FOCAL COMMUNICATIONS	SAN FRANCISCO	650 TOWNSEND ST
CA	SBC	NT5	FOCAL COMMUNICATIONS	SAN JOSE	1741 TECHNOLOGY DR
CA	VERIZON	DS	GLOBAL CROSSING	ANAHEIM	2461 W LA PALMA AVE 2ND FLR
CA	SBC	NT5	GLOBAL CROSSING	CALIFORNIA	SAN DIEGO
CA	SBC	NT5	GLOBAL CROSSING	SACRAMENTO	1303 J ST
CA	VERIZON	5E	ICG COMMUNICATIONS	ALHAMBRA	2300 W VALLEY BLVD
CA	SBC	5E	ICG COMMUNICATIONS	IRVINE	2968 WHITE RD., SUITE 200
CA	VERIZON	5E	ICG COMMUNICATIONS	LAKEWOOD	4007 PARAMOUNT BLVD
CA	VERIZON	5E	ICG COMMUNICATIONS	LOS ANGELES	1905 ARMACOST AVE
CA	SBC	5E2	ICG COMMUNICATIONS	LOS ANGELES	600 W 7TH ST
CA	SBC	5E2	ICG COMMUNICATIONS	MILPITAS	1175 MONTAGUE EXPRESSWAY
CA	SBC	5E	ICG COMMUNICATIONS	OAKLAND	180 GRAND AVE
CA	VERIZON	5E	ICG COMMUNICATIONS	ONTARIO	1471 VALENCIA PL
CA	SBC	5E	ICG COMMUNICATIONS	SACRAMENTO	1414 K ST
CA	SBC	5E	ICG COMMUNICATIONS	SACRAMENTO	770 L ST
CA	SBC	5E	ICG COMMUNICATIONS	SAN DIEGO	8951 COMPLEX DR
CA	SBC	5E	ICG COMMUNICATIONS	SAN FRANCISCO	620 3RD ST

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
CA	VERIZON	5E	ICG COMMUNICATIONS	SAN JOSE	190 PARK CENTER PLAZA
CA	SBC	5E	KCINDUR COMM	SAN LUIS OBISPO	872 MORRO ST
CA	SBC	DS	LEVEL 3	FRESNO	305 W NAPA AVE
CA	SBC	DS	LEVEL 3	WEST SACRAMENTO	1075 TRIANGLE CT
CA	VERIZON	DMS	MPOWER	BELLFLOWER	16730 BELLFLOWER BLVD
CA	SBC	DS	MPOWER	EMERYVILLE	1400 65TH ST
CA	SBC	NT5	MPOWER	LA MESA	4695 PALM AVE
CA	VERIZON	DMS	MPOWER	POMONA	362 E 4TH ST
CA	SBC	DS	MPOWER	SACRAMENTO	9332 TECH CENTER DR
CA	SBC	NT5	MPOWER	SAN JOSE	560 CHARCOT AVE
CA	VERIZON	DM5	NET-TEL CORP.	LOS ANGELES	530 W 6TH ST
CA	SBC	NT5	NET-TEL CORP.	SAN FRANCISCO	200 PAUL AVE
CA	VERIZON	DMH	NORTH COUNTY COMMUNICATIONS	LOS ANGELES	624 SOUTH GRAND
CA	SBC	DMH	NORTH COUNTY COMMUNICATIONS	SACRAMENTO	926 J ST
CA	SBC	DMH	NORTH COUNTY COMMUNICATIONS	SAN DIEGO	4008 TAYLOR ST
CA	VERIZON	DMH	NORTH COUNTY COMMUNICATIONS	SAN FRANCISCO	98 BATTERY ST
CA	VERIZON	VCD	PAETEC	LOS ANGELES	530 W 6TH ST
CA	VERIZON	NT5	POINTE COMM INC	EL MONTE	11025 VALLEY BLVD
CA	SBC	NT5	POINTE COMM INC	SAN DIEGO	3949 RUFFIN RD
CA	SBC	5E	RCN	CARSON	1059 E BEDMAR ST
CA	SBC	5E	RCN	SAN FRANCISCO	200 PAUL AVE
CA	SBC	D12	SIERRA TELEPHONE CO.	OAKHURST	41950 ROAD 426
CA	SBC	5E	SUREWEST COMMUNICATIONS	ROSEVILLE	224 LINCOLN ST
CA	VERIZON	NT5	TELIGENT	LOS ANGELES	1200 W 7TH ST
CA	SBC	NT5	TELIGENT	OAKLAND	1111 BROADWAY
CA	SBC	DS	TIME WARNER TELECOM	BAKERSFIELD	1918 M ST
CA	SBC	DM5	TIME WARNER TELECOM	FRESNO	7576 N DEL MAR AVE
CA	SBC	5ESS	TIME WARNER TELECOM	IRVINE	7 MASON
CA	VERIZON	DM5	TIME WARNER TELECOM	LOS ANGELES	3700 WILSHIRE BLVD
CA	VERIZON	DM5	TIME WARNER TELECOM	RIVERSIDE	1110 PALMYRITA AVE
CA	SBC	5E	TIME WARNER TELECOM	SAN DIEGO	8925 WARE CT
CA	SBC	DMS	TIME WARNER TELECOM	SAN DIEGO	1125 NINTH ST
CA	VERIZON	DM5	TIME WARNER TELECOM	SAN FRANCISCO	501 2ND ST
CA	VERIZON	DM5	TIME WARNER TELECOM	SAN LUIS OBISPO	3050 BROAD ST
CA	VERIZON	DMS	TIME WARNER TELECOM	WALNUT CREEK	1340 TREAT BLVD
CA	VERIZON	5E	U.S. TELEPACIFIC	LOS ANGELES	800 W 6TH ST SUITE 300 3RD FLOOR
CA	SBC	5E	U.S. TELEPACIFIC	SAN DIEGO	6134 NANCY RIDGE DR
CA	SBC	5E	U.S. TELEPACIFIC	SAN JOSE	55 NICHOLSON LN
CA	SBC	DM5	URJET BACKBONE NETWORK	LOS ANGELES	624 S GRAND AVE 11TH FLOOR
CA	SBC	5E	WESTERN INTEGRATED NETWORKS	NORTH HIGHLANDS	5411 LUCE AVE
CA	VERIZON	DE4	WORLDCOM	ANAHEIM	905 EAST DISCOVERY LANE
CA	SBC	5E	WORLDCOM	BAKERSFIELD	1415 18TH ST
CA	SBC	5E	WORLDCOM	BAKERSFIELD	1415 18TH ST
CA	SBC	5E	WORLDCOM	FRESNO	1315 VAN NESS AVE
CA	SBC	5E	WORLDCOM	FRESNO	1315 VAN NESS

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
CA	SBC	DMH	WORLDCOM	HAYWARD	21350 CABOT BLVD
CA	VERIZON	NT5	WORLDCOM	IRVINE	17642 ARMSTRONG AVE
CA	VERIZON	DE4	WORLDCOM	LOS ANGELES	609 W 7TH AVE
CA	SBC	AXT	WORLDCOM	LOS ANGELES	1149 S BROADWAY ST
CA	SBC	AXT	WORLDCOM	LOS ANGELES	1149 SOUTH BROADWAY
CA	SBC	5E	WORLDCOM	REDWOOD CITY	2700 SPRING ST
CA	SBC	DE4	WORLDCOM	SAN DIEGO	707 BROADWAY
CA	SBC	NT5	WORLDCOM	SAN DIEGO	8806 COMPLEX DR
CA	SBC	DMH	WORLDCOM	SAN DIEGO	8806 COMPLEX DR
CA	VERIZON	DE4	WORLDCOM	SAN FRANCISCO	274 BRANNAN ST
CA	SBC	AXT	WORLDCOM	SAN FRANCISCO	525 MARKET ST
CA	SBC	AXT	WORLDCOM	SAN FRANCISCO	525 MARKET ST
CA	SBC	NT5	WORLDCOM	SAN JOSE	611 RIVER OAKS PKY
CA	SBC	5E	WORLDCOM	STOCKTON	400 E MAIN ST
CA	SBC	5E	WORLDCOM	SUNNYVALE	464 OAKMEAD PKY
CA	SBC	5E	WORLDCOM	WEST SACRAMENTO	2820 KOVR DR
CA	SBC	NT5	XO	FREMONT	855 MISSION CT
CA	VERIZON	DMS	XO	LONG BEACH	200 PINE AVE
CA	SBC	DS	XO	LONG BEACH	200 PINE AVE
CA	SBC	DMS	XO	LOS ANGELES	624 S GRAND
CA	SBC	DMS	XO	LOS ANGELES	624 S GRAND
CA	SBC	DM5	XO	ROSEVILLE	1390 LEAD HILL BLVD
CA	SBC	DMS	XO	SAN DIEGO	5771 COPLEY DR
CA	VERIZON	NT5	XO	SANTA ANA	1924 E DEERE AVE
CA	SBC	DMS	XO	SANTA ANA	1924 E DEERE AVE
CA	SBC	DMS	XO	SANTA ANA	1924 E DEERE AVE
CT	SBC	DS	ADVANCED TELCOM GROUP	STAMFORD	76 PROGRESS DR
CT	SBC	5E	AT&T	BRIDGEPORT	522 FAIRFIELD AVE
CT	SBC	NT5	AT&T	CHESHIRE	751 HIGGINS RD
CT	SBC	DMS	AT&T	HARTFORD	153 MARKET ST
CT	SBC	4E	AT&T	NEW HAVEN	310 ORANGE ST
CT	SBC	NT5	AT&T	STAMFORD	76 PROGRESS DR
CT	SBC	5E	CABLEVISION LIGHTPATH	NORWALK	28 CROSS ST
CT	SBC	DS	CHOICE ONE	HARTFORD	NORTHEAST PLZ TOWER 2
CT	SBC	5E	CONVERSENT	NEW HAVEN	300 GEORGE ST
CT	SBC	D12	COX	MANCHESTER	170 UTOPIA RD
CT	SBC	NT5	GLOBAL CROSSING	STAMFORD	114 STILLWATER
CT	SBC	D12	WORLDCOM	HARTFORD	242 TRUMBULL ST
CT	SBC	5E	WORLDCOM	HARTFORD	MAIN ST & GOLD ST
CT	SBC	AXT	WORLDCOM	HARTFORD	185 ASYLUM ST
CT	SBC	AXT	WORLDCOM	HARTFORD	185 ASYLUM ST @ SEE ALSO CITY PLACE
CT	SBC	5E	WORLDCOM	STAMFORD	1351 WASHINGTON BLVD
CT	SBC	AXT	WORLDCOM	STAMFORD	3 LANDMARK SQ
DC	VERIZON	5E	ALLEGIANCE TELECOM	WASHINGTON	1120 VERMONT AVE NW
DC	VERIZON	5E	ARBROS	WASHINGTON	1201 L ST NW
DC	VERIZON	5E	AT&T	WASHINGTON	725 13TH ST.
DC	VERIZON	4E	AT&T	WASHINGTON	30 E ST SW
DC	VERIZON	DMH	AT&T	WASHINGTON	1331 F ST NW
DC	VERIZON	NT5	FOCAL COMMUNICATIONS	WASHINGTON	1120 VERMONT AVE NW

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
DC	VERIZON	NT5	GLOBAL CROSSING	WASHINGTON	1220 L ST N.W.
DC	VERIZON	DM5	NET2000	WASHINGTON	1275 K ST
DC	VERIZON	NT5	TELIGENT	WASHINGTON	1120 VERMONT AVE NW
DC	VERIZON	NT5	WORLDCOM	WASHINGTON	120 INGRAHAM ST NE
DC	VERIZON	5E	WINSTAR	WASHINGTON	1850 M ST NW
DC	VERIZON	VCD	WINSTAR	WASHINGTON	1850 M ST NW
DC	VERIZON	DMS	XO	WASHINGTON	4301 CONNECTICUT AVE NW
DE	VERIZON	DMH	CAVALIER TELEPHONE	NEWARK	500 N WAKEFIELD DR
FL	BELLSOUTH	5E	ADELPHIA	JACKSONVILLE	6263 PHILLIPS HWY
FL	BELLSOUTH	5E	ADELPHIA	TAMARAC	2121 W PROSPECT RD
FL	VERIZON	5E	ALLEGIANCE TELECOM	TAMPA	8230 E BROADWAY AVE
FL	BELLSOUTH	5E	ALLTEL	JACKSONVILLE	601 RIVERSIDE AVE
FL	BELLSOUTH	4E	AT&T	FORT LAUDERDALE	1352 NW 40TH AVE
FL	BELLSOUTH	5E	AT&T	FORT LAUDERDALE	1340 NW N.W. 40TH AVE
FL	VERIZON	5E	AT&T	JACKSONVILLE	424 PEARL ST
FL	BELLSOUTH	4E	AT&T	JACKSONVILLE	424 PEARL ST
FL	BELLSOUTH	5E	AT&T	JACKSONVILLE	424 N PEARL ST
FL	BELLSOUTH	NT5	AT&T	JACKSONVILLE	424 N PEARL ST
FL	BELLSOUTH	5E	AT&T	JACKSONVILLE	5934 RICHARD RD
FL	BELLSOUTH	4E	AT&T	OJUS	460 NE 215 ST
FL	BELLSOUTH	NT5	AT&T	OJUS	460 NE 215TH ST
FL	BELLSOUTH	4E	AT&T	ORLANDO	45 N MAGNOLIA AVE
FL	BELLSOUTH	5E	AT&T	ORLANDO	45 N MAGNOLIA AVE
FL	BELLSOUTH	5E	AT&T	ORLANDO	1151 N KELLER RD
FL	BELLSOUTH	5E	AT&T	POMPANO BEACH	141 NW 16TH ST
FL	VERIZON	4E	AT&T	TAMPA	2261 MASSARO BLVD
FL	VERIZON	5E	AT&T	TAMPA	6015 BENJAMIN RD
FL	BELLSOUTH	4E	AT&T	WEST PALM BEACH	325 GARDENIA ST
FL	BELLSOUTH	5E	AT&T	WEST PALM BEACH	3700 RCA BLVDAVE
FL	BELLSOUTH	VCD	BTI	JACKSONVILLE	121 W FORSYTH ST SUITE 100
FL	BELLSOUTH	5E	BTI	ORLANDO	201 S ORANGE AVE
FL	BELLSOUTH	5E	BTI	ORLANDO	201 S ORANGE AVE
FL	VERIZON	VCD	BTI	TAMPA	400 N TAMPA ST
FL	BELLSOUTH	5E	E.SPIRE	FORT LAUDERDALE	100 NE 3RD AVE
FL	BELLSOUTH	5E	E.SPIRE	JACKSONVILLE	200 W FORSYTH ST
FL	VERIZON	5EH	E.SPIRE	TAMPA	111 MADISON ST
FL	BELLSOUTH	5E	EAGLE COMMUNICATIONS	MIAMI	1 NE 1ST ST
FL	BELLSOUTH	NT5	FLORIDA DIGITAL NETWORK	FORT LAUDERDALE	200 N ANDREWS AVE
FL	BELLSOUTH	NT5	FLORIDA DIGITAL NETWORK	GAINESVILLE	400 SW 2ND AVE
FL	BELLSOUTH	NT5	FLORIDA DIGITAL NETWORK	JACKSONVILLE	3986 BLVD CENTER DR
FL	BELLSOUTH	NT5	FLORIDA DIGITAL NETWORK	ORLANDO	390 N ORANGE AVE
FL	BELLSOUTH	NT5	FLORIDA DIGITAL NETWORK	PORT ORANGE	829 ORANGE AVE
FL	VERIZON	NT5	FLORIDA DIGITAL NETWORK	TAMPA	610 E ZACK ST
FL	VERIZON	DMH	FLORIDA DIGITAL NETWORK	TAMPA	655 N FRANKLIN ST
FL	BELLSOUTH	NT5	FOCAL COMMUNICATIONS	MIAMI	701 BRICKELL AVE
FL	VERIZON	NT5	GLOBAL CROSSING	TAMPA	400 N TAMPA ST

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
FL	BELLSOUTH	NT5	GLOBAL NAPS	MIAMI	100 S BISCAYNE BLVD
FL	BELLSOUTH	DMS	IDS TELECOM	MIAMI	1080 NW 163RD DR
FL	BELLSOUTH	VCD	INTERLOOP INC	MIAMI	15590 NW 15TH AVE
FL	VERIZON	5E	INTERLOOP INC	TAMPA	3403 ORIENT RD
FL	BELLSOUTH	NT5	INTERMEDIA COMMUNICATIONS	JACKSONVILLE	7020 A C SKINNER PKY
FL	BELLSOUTH	DMS	INTERMEDIA COMMUNICATIONS	MIAMI	1907 NW 87TH ST
FL	BELLSOUTH	NT5	INTERMEDIA COMMUNICATIONS	ORLANDO	100 W LUCERNE CIR
FL	BELLSOUTH	NT5	INTERMEDIA COMMUNICATIONS	ORLANDO	111 N ORANGE AVE
FL	VERIZON	DMT	INTERMEDIA COMMUNICATIONS	TAMPA	3502 QUEEN PALM DR
FL	BELLSOUTH	DS	ITC^DELTACOM	DAYTONA BEACH	268 N RIDGEWOOD AVE
FL	BELLSOUTH	DS	ITC^DELTACOM	JACKSONVILLE	421 W CHURCH ST
FL	BELLSOUTH	DS	ITC^DELTACOM	OCALA	2909 SE 36TH AVE
FL	BELLSOUTH	DS	ITC^DELTACOM	ORLANDO	201 S ORANGE AVENUE
FL	BELLSOUTH	DS	ITC^DELTACOM	PANAMA CITY	1795 INDUSTRIAL DR
FL	BELLSOUTH	DMS	ITC^DELTACOM	PENSACOLA	100 N Q ST
FL	VERIZON	DS	ITC^DELTACOM	TAMPA	655 N FRANKLIN ST
FL	BELLSOUTH	DS	ITC^DELTACOM	WEST PALM BEACH	1475 CENTREPARK BLVD
FL	VERIZON	5E	KMC TELECOM	CLEARWATER	12690 44TH ST N
FL	BELLSOUTH	5E	KMC TELECOM	ENSLEY	7891 SEARS BLVD
FL	BELLSOUTH	5E	KMC TELECOM	HOLLY HILL	1640 STATE AV
FL	BELLSOUTH	5E	KMC TELECOM	PALM BAY	2300 COMMERCE PARK DR NE
FL	VERIZON	5E	KMC TELECOM	SARASOTA	6288 TOWER LN
FL	BELLSOUTH	DS	LEVEL 3	JACKSONVILLE	4814 PHILLIPS HWY
FL	BELLSOUTH	EWSD	METTEL	MIAMI	100 N BISCAYNE BLVD
FL	BELLSOUTH	NT5	MPOWER	FORT LAUDERDALE	201 NE 24TH ST
FL	VERIZON	NT5	MPOWER	TAMPA	655 N FRANKLIN ST
FL	BELLSOUTH	5E	NETWORK PLUS	MIAMI	100 NE 80TH TER
FL	BELLSOUTH	DS	NETWORK TELEPH.	PENSACOLA	30 W BELMONT ST
FL	BELLSOUTH	DCO	NEW MILLENNIUM TELECOMMUNICATIONS INC.	MIAMI	100 N BISCAYNE BLVD
FL	BELLSOUTH	EWSD	NEWSOUTH COMMUNICATIONS	DESTIN	185 STAHLMAN AVE
FL	VERIZON	5E	NEWSOUTH COMMUNICATIONS	WINTER HAVEN	200 AVE B
FL	BELLSOUTH	EWSD	ORLANDO TELEPHONE	ORLANDO	4558 35TH ST
FL	BELLSOUTH	VCD	PAETEC	MIAMI	100 N BISCAYNE BLVD
FL	BELLSOUTH	NT5	POINTE COMM INC	MIAMI	99 S. E. 5TH STREET
FL	BELLSOUTH	5E	SPRINT	ORLANDO	200 E ROBINSON ST
FL	BELLSOUTH	NT5	TELIGENT	EATONVILLE	250 RIO DR
FL	BELLSOUTH	5E	TIME WARNER TELECOM	MAITLAND	2251 LUCIEN WAY
FL	BELLSOUTH	5E	TIME WARNER TELECOM	ORLANDO	7003 PRESIDENTS DR
FL	BELLSOUTH	DMH	TRIVERGENT	MIAMI	18504 NE 5TH AVE
FL	VERIZON	NT5	URBAN MEDIA LONG DISTANCE	TAMPA	7808 WOODLAND CENTER BLVD
FL	BELLSOUTH	5E	US LEC	JACKSONVILLE	6410 SOUTHPOINT PKY
FL	BELLSOUTH	VCD	US LEC	MIAMI	5301 BLUE LAGOON DR
FL	BELLSOUTH	5E	US LEC	PALM BEACH GARDENS	7121 FAIRWAY DR
FL	VERIZON	5E	US LEC	TAMPA	400 N TAMPA ST
FL	BELLSOUTH	5E	WINSTAR	MIAMI	150 SE 2ND AVE
FL	BELLSOUTH	5E	WINSTAR	ORLANDO	201 S ORANGE AVENUE
FL	VERIZON	VCD	WINSTAR	TAMPA	4200 W CYPESS ST
FL	BELLSOUTH	DE4	WORLDCOM	MIAMI	150 SE 2ND AVE

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
FL	BELLSOUTH	5E	WORLDCOM	MIAMI	8830 NW 18TH TER
FL	BELLSOUTH	DE4	WORLDCOM	MIAMI	150 SE 2ND AVE
FL	BELLSOUTH	DE4	WORLDCOM	ORLANDO	250 S. ORANGE AVE
FL	BELLSOUTH	DMH	WORLDCOM	ORLANDO	400 LK DESTINY RD
FL	BELLSOUTH	DE4	WORLDCOM	POMPANO BEACH	599 SW 16TH TER
FL	BELLSOUTH	DE4	WORLDCOM	POMPANO BEACH	599 SW 16TH TER
FL	VERIZON	DE4	WORLDCOM	TAMPA	1000 NORTH ASHLEY DR. 9TH FL
FL	VERIZON	DMH	WORLDCOM	TAMPA	8212 WOODLAND CENTER BLVD
FL	BELLSOUTH	DMS	XO	MIAMI	16565 B NW 15TH ST
FL	VERIZON	DM5	XO	TAMPA	5904A HAMPTON OAKS PKY
GA	BELLSOUTH	5E	ADELPHIA	ATLANTA	953 DONNELLY AVE SW
GA	BELLSOUTH	5E	ALLEGIANCE TELECOM	ATLANTA	55 MARIETTA ST NW
GA	BELLSOUTH	DMS	ALLTEL	AUGUSTA	1490 ELLIS ST
GA	BELLSOUTH	DMH	ALLTEL	RINCON	ONE BLOCK OFF HWY 21
GA	BELLSOUTH	4E	AT&T	ATLANTA	3003 S COBB PKWY
GA	BELLSOUTH	4E	AT&T	ATLANTA	51 PEACHTREE CENTER AVE NE
GA	BELLSOUTH	5E	AT&T	ATLANTA	51 PEACHTREE CENTER AVE NE
GA	BELLSOUTH	NT5	AT&T	ATLANTA	51 PEACHTREE CENTER AVE NE
GA	BELLSOUTH	4E	AT&T	MACON	1030 GEORGIA AVE
GA	BELLSOUTH	5E	AT&T	MACON	1030 GEORGIA AVE
GA	BELLSOUTH	4E	AT&T	MONTICELLO	266 E GREEN ST
GA	BELLSOUTH	DMH	AT&T	NORCROSS	5060 AVALON RIDGE PKY
GA	BELLSOUTH	5E	AT&T	STONE MOUNTAIN	4545 STONEGATE INDUSTRIAL BLVD
GA	BELLSOUTH	5E	BTI	ATLANTA	55 PARK PL NE
GA	BELLSOUTH	DS	COMM SOUTH COS	HAWKINSVILLE	BROAD ST
GA	BELLSOUTH	EWS	DARIEN COMMUNICATIONS	DARIEN	1011 NORTHWAY ST
GA	BELLSOUTH	5E	E.SPIRE	ATLANTA	2 RAVINIA DR NE
GA	BELLSOUTH	5E	E.SPIRE	COLUMBUS	1044 FRONT ST
GA	BELLSOUTH	NT5	FOCAL COMMUNICATIONS	ATLANTA	250 WILLIAMS ST NW
GA	BELLSOUTH	NT5	GLOBAL CROSSING	ATLANTA	250 WILLIAMS ST
GA	BELLSOUTH	5E	ICG COMMUNICATIONS	CHAMBLEE	30 PERIMETER PARK DR
GA	BELLSOUTH	NT5	INTERMEDIA COMMUNICATIONS	ATLANTA	360 INTERSTATE NORTH PKY NW
GA	BELLSOUTH	DS	ITC^DELTACOM	ATHENS	125 REESE ST
GA	BELLSOUTH	DS	ITC^DELTACOM	ATLANTA	55 PARK PL NE
GA	BELLSOUTH	DS	ITC^DELTACOM	AUGUSTA	301 15TH ST
GA	BELLSOUTH	DS	ITC^DELTACOM	MACON	160 STATE ST
GA	BELLSOUTH	DS	ITC^DELTACOM	SAVANNAH	1315 BULL ST
GA	BELLSOUTH	5E	KMC TELECOM	AUGUSTA	419 11TH ST
GA	BELLSOUTH	5E	KMC TELECOM	SAVANNAH	81 ROSS RD
GA	BELLSOUTH	DS	LECSTAR	ALBANY	304 PINE AVE
GA	BELLSOUTH	5E	LECSTAR	AUGUSTA	937 GREENE ST
GA	BELLSOUTH	DS	LECSTAR	MACON	787 CHERRY ST
GA	BELLSOUTH	5E	LECSTAR	SAVANNAH	1300 BULL ST
GA	BELLSOUTH	EWS	LIGHTSOURCE TELECOM	ROSWELL	1940 OLD ALABAMA RD
GA	BELLSOUTH	NT5	MPOWER	ATLANTA	1593 NORTHEAST EXPY NE
GA	BELLSOUTH	NT5	NET-TEL CORP.	ATLANTA	250 WILLIAMS ST NW
GA	BELLSOUTH	5E	NETWORK PLUS	NORCROSS	3190 REPS MILLER RD NW
GA	BELLSOUTH	DS	NETWORK TELEPH.	ATLANTA	2700 NE EXPRESSWAY ACCESS RD NE @ BLDG-B
GA	BELLSOUTH	NT5	TELIGENT	ATLANTA	55 MARIETTA ST

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
GA	BELLSOUTH	DS	TOUCHTONE COMMUNICATIONS	VALDOSTA	501 NORTH TOOMBS
GA	BELLSOUTH	DS	TRIVERGENT	ATLANTA	3423 PIEDMONT RD NE
GA	BELLSOUTH	5E	US LEC	ATLANTA	2 CONCOURSE PKY NE
GA	BELLSOUTH	5E	WINSTAR	ATLANTA	34 PEACHTREE ST NW
GA	BELLSOUTH	VCD	WINSTAR	ATLANTA	34 PEACHTREE ST
GA	BELLSOUTH	AXT	WORLDCOM	ATLANTA	250 WILLIAMS ST NW
GA	BELLSOUTH	DMH	WORLDCOM	ATLANTA	250 WILLIAMS ST NW
GA	BELLSOUTH	DE4	WORLDCOM	MARIETTA	1176 FRANKLIN ST
GA	BELLSOUTH	DM5	XO	SMYRNA	4000 HIGHLANDS PKY SE
HI	VERIZON	DM5	TIME WARNER TELECOM	HONOLULU	737 BISHOP ST
IA	QWEST	4E	AT&T	DES MOINES	925 HIGH
IA	QWEST	5ES	AT&T	DES MOINES	925 HIGH
IA	QWEST	DMS10	CASCADE TELEPHONE CO.	CASCADE	108 FILLMORE ST SE
IA	QWEST	DMS1/200	FIBER COM	SIOUX CITY	901 STEUBEN ST
IA	QWEST	DMS10	GLOBAL CROSSING	OAKLAND	505 LINDEN ST
IA	QWEST	DMS100	HICKORYTECH	URBANDALE	2859 99TH ST
IA	QWEST	DMS1/200	IOWA NETWORK SERVICES, INC.	DES MOINES	312 8TH ST
IA	QWEST	DMS10	IOWA TELECOM	OXFORD	116 PRARIE
IA	QWEST	GT5	IOWA TELECOM	REDFIELD	1111 THOMAS ST
IA	QWEST	NT5	MCLEODUSA	DAVENPORT	5617 W LOCUST ST
IA	QWEST	DS	MCLEODUSA	DES MOINES	3540 SW 61ST ST
ID	QWEST	DS	CTC COMMUNICATIONS	BOISE	5883 W DRY CREEK RD
ID	QWEST	DSS	ELECTRIC LIGHTWAVE	BOISE	10452 EMERALD ST
ID	QWEST	DS	MCLEODUSA	BOISE	314 S 6TH ST
ID	QWEST	EWSD	TIME WARNER TELECOM	BOISE	199 N CAPITOL BLVD
IL	SBC	DS	ADELPHIA	CHICAGO	601 W POLK ST
IL	SBC	5E	ALLEGIANCE TELECOM	CHICAGO	140 S DEARBORN
IL	VERIZON	5E	AT&T	CHICAGO	717 S WELLS ST
IL	SBC	4E	AT&T	CHICAGO	85 W CONGRESS PKY
IL	SBC	NT5	AT&T	CHICAGO	85 W CONGRESS PKY
IL	SBC	DS	AT&T	CHICAGO	85 W CONGRESS PKY
IL	SBC	5E	AT&T	CHICAGO	10 S CANAL ST
IL	SBC	4E	AT&T	CHICAGO	10 S CANAL ST
IL	SBC	5E	AT&T	GLENVIEW	1900 PICKWICK
IL	SBC	DS	AT&T	LISLE	4513 WESTERN AVE
IL	SBC	4E	AT&T	OAK BROOK	1000 COMMERCE DR
IL	SBC	5E	AT&T	OAK BROOK	1000 COMMERCE DR
IL	SBC	5E	AT&T	ROLLING MEADOWS	3820 GOLF RD
IL	SBC	5E	CHOICE ONE	MACHESNEY PARK	9934 N ALPINE RD
IL	SBC	NT5	CORE COMMUNICATIONS	CHICAGO	65 E WACKER PL
IL	SBC	DS	ELEC	STERLING	2 EAST 3RD ST.
IL	SBC	DMH	FOCAL COMMUNICATIONS	CHICAGO	200 N LA SALLE ST
IL	SBC	DMH	FOCAL COMMUNICATIONS	ELK GROVE TOWNSHIP	1305 E ALGONQUIN RD
IL	SBC	NT5	GLOBAL CROSSING	CHICAGO	101 N. WACKER DR. SUITE 310
IL	SBC	DCO	GLOBAL CROSSING	POCAHONTAS	MIDLAND TEL CO
IL	SBC	DMS	GLOBALCOM	CHICAGO	520 S. FEDERAL
IL	SBC	5E2	ICG COMMUNICATIONS	CHICAGO	717 S WELLS ST
IL	SBC	NT5	INTERMEDIA COMMUNICATIONS	CHICAGO	205 N MICHIGAN AVE
IL	SBC	NT5	MADISON RIVER	PEKIN	416 MARGARET ST

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
IL	SBC	5E	MCLEODUSA	CHICAGO	427 S LA SALLE ST
IL	SBC	NT5	MCLEODUSA	SPRINGFIELD	528 S 5TH ST
IL	SBC	NT5	MPOWER	WHEELING	31 N WOLF
IL	SBC	NT5	NET-TEL CORP.	CHICAGO	717 S WELLS ST
IL	SBC	5E	PAETEC	CHICAGO	600 S FEDERAL ST
IL	VERIZON	NT5	RCN	CHICAGO	350 N ORLEANS ST
IL	SBC	DS	TDS	VERNON HILLS	50 LAKEVIEW PKY
IL	SBC	NT5	TELIGENT	CHICAGO	111 N CANAL ST
IL	SBC	NT5	WORLDCOM	BENSENVILLE	602 N YORK RD
IL	SBC	AXT	WORLDCOM	CHICAGO	800 S WELLS ST
IL	SBC	NT5	WORLDCOM	CHICAGO	550 W JACKSON
IL	SBC	AXT	WORLDCOM	CHICAGO	800 S WELLS ST
IL	SBC	DMH	WORLDCOM	ELK GROVE VILLAGE	955 ARTHUR AVE
IL	SBC	NT5	XO	CHICAGO	303 E WACKER DR
IL	SBC	NT5	XO	WOOD DALE	711 N EDGEWOOD AVE
IN	VERIZON	5EH	AT&T	EVANSVILLE	133-135 NW 5TH ST
IN	SBC	5E	AT&T	INDIANAPOLIS	112 W NORTH ST
IN	SBC	DMH	AT&T	INDIANAPOLIS	711 WEST HENRY ST
IN	SBC	VCD	CHOICE ONE	BLOOMINGTON TOWNSHIP	2599 W VERNAL PIKE
IN	VERIZON	5E	CHOICE ONE	FORT WAYNE	2730 E COLISEUM BLVD
IN	VERIZON	5E	CHOICE ONE	INDIANAPOLIS	701 W HENRY ST
IN	SBC	VCD	CHOICE ONE	KNIGHT TOWNSHIP	5727 OLD BOONVILLE HWY
IN	SBC	5E	CHOICE ONE	MISHAWAKA	221 RED COACH DR
IN	SBC	DE5	DIVERSIFIED COMMUNICATIONS INC	MCCORDSVILLE	6061 W. PENDLETON PIKE, RD. 67
IN	SBC	DS	FBN INDIANA	MICHIGAN CITY	724 FRANKLIN ST
IN	SBC	NT5	GLOBAL CROSSING	INDIANAPOLIS	700 HENRY ST
IN	SBC	DM5	GOLDEN HARBOR	INDIANAPOLIS	800 OLIVER AVE
IN	VERIZON	EWSD	INDIGITAL	FORT WAYNE	5312 WEST WASHINGTON CENTER ROAD
IN	SBC	NT5	INTERMEDIA COMMUNICATIONS	INDIANAPOLIS	550 KENTUCKY AV
IN	VERIZON	5E	KMC TELECOM	FORT WAYNE	1710 DIRECTORS ROW
IN	SBC	DS	LEVEL 3	INDIANAPOLIS	1902 S EAST ST
IN	SBC	DS	MCLEODUSA	FISHERS	7998 CENTERPOINT DR
IN	SBC	5EH	MICHIANA METRONET	FRANKFORT	257 W CLINTON ST
IN	SBC	DMT	MICHIANA METRONET	HARTFORD CITY	218 W FRANKLIN ST
IN	SBC	D12	TELIGENT	INDIANAPOLIS	5739 W MINNESOTA ST
IN	VERIZON	5E	TIME WARNER TELECOM	INDIANAPOLIS	1465 GENT AVE
IN	SBC	NT5	TOTALINK	EVANSVILLE	1301 W LLOYD EXPY
IN	SBC	DMH	TRIVERGENT	INDIANAPOLIS	701 W HENRY ST
IN	SBC	DMH	WESTEL	ANDERSON	121 E 11 ST
IN	SBC	DMH	WORLDCOM	INDIANAPOLIS	6835 HILLSDALE CT
KS	SBC	5E	ADELPHIA	WICHITA	266 N MAIN
KS	SBC	5E	AT&T	KANSAS CITY	7400 JOHNSON DR
KS	SBC	4E	AT&T	WICHITA	154 N BROADWAY ST
KS	SBC	5E	BIRCH TELECOM	WICHITA	3450 N ROCK RD
KS	SBC	5E	EVEREST CONNECTIONS	LENEXA	9669 LACKMAN RD
KS	SBC	NT5	IONEX TELECOMMUNICATIONS INC.	WICHITA	8201 E 34TH ST N
KS	SBC	5E	KMC TELECOM	TOPEKA	2444 SE LAKEWOOD BLVD

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
KS	SBC	DMT	RTSC COMMUNICATIONS	LENORA	LENORA
KS	SBC	DMT	RTSC COMMUNICATIONS	VICTORIA	VICTORIA KS
KS	SBC	DMH	TRIVERGENT	LENEXA	7945 BOND ST
KS	SBC	DMH	TRIVERGENT	WICHITA	8200 E 34 CIR N
KS	SBC	NT5	WORLDNET, LLC DBA SU	LAWRENCE	644 NEW HAMPSHIRE ST
KY	BELLSOUTH	5E	ADELPHIA	LOUISVILLE	962 S 3RD ST
KY	BELLSOUTH	4E	AT&T	LOUISVILLE	521 W CHESTNUT ST
KY	BELLSOUTH	DMS	AT&T	LOUISVILLE	521 W CHESTNUT ST
KY	BELLSOUTH	NT5	AT&T	LOUISVILLE	521 W CHESTNUT ST
KY	BELLSOUTH	5E	E.SPIRE	LOUISVILLE	462 S 4TH ST
KY	BELLSOUTH	5E	E-TEL	MURRAY	401 OLIVE ST
KY	BELLSOUTH	5E	ICG COMMUNICATIONS	LOUISVILLE	332 W BROADWAY ST
KY	BELLSOUTH	DS	LEVEL 3	LOUISVILLE	848 S 8TH ST
KY	VERIZON	D12	MIKROTEC COMMUNICATIONS	LEXINGTON	1001 WINCHESTER RD
KY	VERIZON	POI	NEWSOUTH COMMUNICATIONS	LEXINGTON	151 S MARTIN LUTHER KING BLVD
KY	VERIZON	D12	TOUCHTONE COMMUNICATIONS	LEXINGTON	250 W MAIN ST
KY	BELLSOUTH	DS	TOUCHTONE COMMUNICATIONS	PADUCAH	1158 JEFFERSON ST
KY	BELLSOUTH	5E	US LEC	LOUISVILLE	9780 ORMSBY STATION RD
KY	BELLSOUTH	DS	VISION	PADUCAH	923 WASHINGTON ST
LA	BELLSOUTH	5E	ADELPHIA	BATON ROUGE	301 MAIN ST
LA	BELLSOUTH	D12	ADVANCED TELCOM GROUP	BATON ROUGE	620 FLORIDA ST
LA	BELLSOUTH	4E	AT&T	BATON ROUGE	333 N 6TH ST
LA	BELLSOUTH	4E	AT&T	NEW ORLEANS	840 POYDRAS/520 BARONNE
LA	BELLSOUTH	DS	CENTURYTEL INC	SHREVEPORT	406 COTTON ST
LA	BELLSOUTH	VCD	COLUMBIA TELECOMM	NEW ORLEANS	1340 POYDRAS ST
LA	BELLSOUTH	NT5	COX	HARAHAN	338 EDWARDS AVE
LA	BELLSOUTH	DMT	CP-TEL NETWORK SERVICES, INC.	NATCHITOCHES	5909 HWY 1 BYPASS
LA	BELLSOUTH	5E	E.SPIRE	NEW ORLEANS	1250 POYDRAS AVE
LA	BELLSOUTH	DM5	INTERMEDIA COMMUNICATIONS	SHREVEPORT	724 MCNEIL ST
LA	BELLSOUTH	DS	ITC^DELTACOM	BATON ROUGE	446 NORTH BLVD
LA	BELLSOUTH	DS	ITC^DELTACOM	LAKE CHARLES	902 RAILROAD AVE
LA	BELLSOUTH	DS	ITC^DELTACOM	MONROE	117 HART ST
LA	BELLSOUTH	DS	ITC^DELTACOM	NEW ORLEANS	639 LOYOLA AVE
LA	BELLSOUTH	DS	ITC^DELTACOM	SCOTT	220 RUE BON SECOURS
LA	BELLSOUTH	DS	ITC^DELTACOM	SHREVEPORT	724 MCNEIL ST
LA	BELLSOUTH	5E	KMC TELECOM	BATON ROUGE	5758 ESSEN LN
LA	BELLSOUTH	5E	KMC TELECOM	MONROE	1908 PINE ST
LA	BELLSOUTH	5E	KMC TELECOM	SHREVEPORT	506 CADDO ST
LA	BELLSOUTH	DS	LEVEL 3	METAIRIE	3220 LAUSAT ST
LA	BELLSOUTH	DS	LOUISIANA COMPETITIVE TELECOMMUNICATIONS, INC.	KAPLAN	KAPLAN LN
LA	BELLSOUTH	D12	MADISON RIVER	NEW ORLEANS	1650 POYDRAS ST
LA	BELLSOUTH	NT5	MCLEODUSA	LAFAYETTE	201 W VERMILLION ST
LA	BELLSOUTH	DS	NETWORK TELEPH.	BATON ROUGE	566 LOBDELL AVE
LA	BELLSOUTH	DS	NETWORK TELEPH.	LAFAYETTE	110 CENTRAL ST
LA	BELLSOUTH	DS	NETWORK TELEPH.	NEW ORLEANS	115 GRUNER RD
LA	BELLSOUTH	DS	NETWORK TELEPH.	SHREVEPORT	602 CROCKETT ST
LA	BELLSOUTH	EWSD	NEWSOUTH COMMUNICATIONS	METAIRIE	1008 L AND A RD
LA	BELLSOUTH	5E	RESERVE LONG DIST	RESERVE	100 RTC DRIVE
LA	BELLSOUTH	DS	STRATOS TELECOM, INC.	MORGAN CITY	1750 YOUNGS RD

CLEC Circuit Switches Serving BOC Rate Centers					
State	**BOC Region**	**Type**	**CLEC**	**City**	**Street**
LA	BELLSOUTH	DMH	STRATOS TELECOM, INC.	NEW ORLEANS	701 POYDRAS ST
LA	BELLSOUTH	DS	STRATOS TELECOM, INC.	VENICE	523 JUMP BASIN RD @ WREHSE ON SHELL DOCK
LA	BELLSOUTH	VCD	XSPEDIUS CORP.	LAKE CHARLES	844 RYAN ST
MA	VERIZON	DS	ADELPHIA	SOMERVILLE	70 INNERBELT RD
MA	VERIZON	5E	ALLEGIANCE TELECOM	BOSTON	451 D ST
MA	VERIZON	5E	AT&T	BOSTON	230 CONGRESS ST
MA	VERIZON	NT5	AT&T	BOSTON	451 D ST
MA	VERIZON	4E	AT&T	CAMBRIDGE	250 BENT ST
MA	VERIZON	5E	AT&T	CAMBRIDGE	250 BENT ST
MA	VERIZON	5E	AT&T	FOXBORO	85 E. BELCHER RD
MA	VERIZON	5E	AT&T	FRAMINGHAM	825 WAVERLY STREET
MA	VERIZON	5E	AT&T	FRAMINGHAM	825 WAVERLY STREET
MA	VERIZON	5E	AT&T	LOWELL	12 WASHER ST
MA	VERIZON	5E	AT&T	MARLBORO	19 BRIGHAM ST
MA	VERIZON	5E	AT&T	NEEDHAM	95 WEXFORD ST
MA	VERIZON	4E	AT&T	SPRINGFIELD	351 BRIDGE ST
MA	VERIZON	4E	AT&T	WORCESTER	175 MAIN ST
MA	VERIZON	NT5	BROADVIEW	CHARLESTOWN	500 RUTHERFORD AVE SUITE 202
MA	VERIZON	5E	CHOICE ONE	SPRINGFIELD	1 FEDERAL ST - BUILDING 111-3
MA	VERIZON	5E	CHOICE ONE	WORCESTER	474 MAIN ST
MA	VERIZON	DCO	COMAV	FRAMINGHAM	111 SPEEN ST
MA	VERIZON	5E	CONVERSENT	WORCESTER	90 WASHINGTON ST
MA	VERIZON	5E	CORE COMMUNICATIONS	BOSTON	451 D ST
MA	VERIZON	NT5	FOCAL COMMUNICATIONS	CAMBRIDGE	ONE MAIN ST
MA	VERIZON	NT5	GLOBAL CROSSING	BOSTON	230 CONGRESS ST
MA	VERIZON	NT5	GLOBAL CROSSING	WESTFIELD	8 WILLIAMS WAY
MA	VERIZON	NT5	INTERMEDIA COMMUNICATIONS	CAMBRIDGE	179 5TH ST
MA	VERIZON	DMS	LIGHTSHIP TELECOM	WORCESTER	44 FRONT ST
MA	VERIZON	DMH	NECLEC LLC	SPRINGFIELD	167 MARKET PL.
MA	VERIZON	NT5	NET2000	CHARLESTOWN	500 RUTHERFORD AVE
MA	VERIZON	5E	NETWORK PLUS	CAMBRIDGE	185 BENT ST
MA	VERIZON	DS	NORFOLK COUNTY COMM	FRANKLIN	13 MAIN ST
MA	VERIZON	5E	PAETEC	BOSTON	230 CONGRESS ST
MA	VERIZON	5E	RCN	SOUTH BOSTON	105 W 1ST ST
MA	VERIZON	DMT	RICHMOND CONNECTIONS	RICHMOND	CANAAN RD & RICHMOND RD
MA	VERIZON	NT5	TELIGENT	CHARLESTOWN	500 RUTHERFORD AVE
MA	VERIZON	5E	WINSTAR	BOSTON	99 SUMMER ST
MA	VERIZON	NT5	WORLDCOM	ACTON	31 NAGOG PARK
MA	VERIZON	NT5	WORLDCOM	BOSTON	800 BOYLSTON ST
MA	VERIZON	DMH	WORLDCOM	CAMBRIDGE	300 BENT ST
MA	VERIZON	5EH	WORLDCOM	SPRINGFIELD	1 FEDERAL ST
MA	VERIZON	AXT	WORLDCOM	WALTHAM	580 WINTER ST
MA	VERIZON	NT5	XO	CAMBRIDGE	89 FULKERSON ST
MD	VERIZON	5E	ADELPHIA	BALTIMORE	300 W LEXINGTON ST
MD	VERIZON	5EH	ADVANCED TELCOM GROUP	ROCKVILLE	515 DOVER RD
MD	VERIZON	5E	ALLEGIANCE TELECOM	BALTIMORE	100 S CHARLES ST
MD	VERIZON	5E	AT&T	BALTIMORE	323 N CHARLES ST
MD	VERIZON	DMH	AT&T	BALTIMORE	25 S CHARLES ST
MD	VERIZON	NT5	AT&T	COLUMBIA	9151 RUMSEY RD
MD	VERIZON	4E	AT&T	MONROVIA	11026 FINGERBOARD RD